

L0 Module Testing and Analog Cable

- What we built so far:

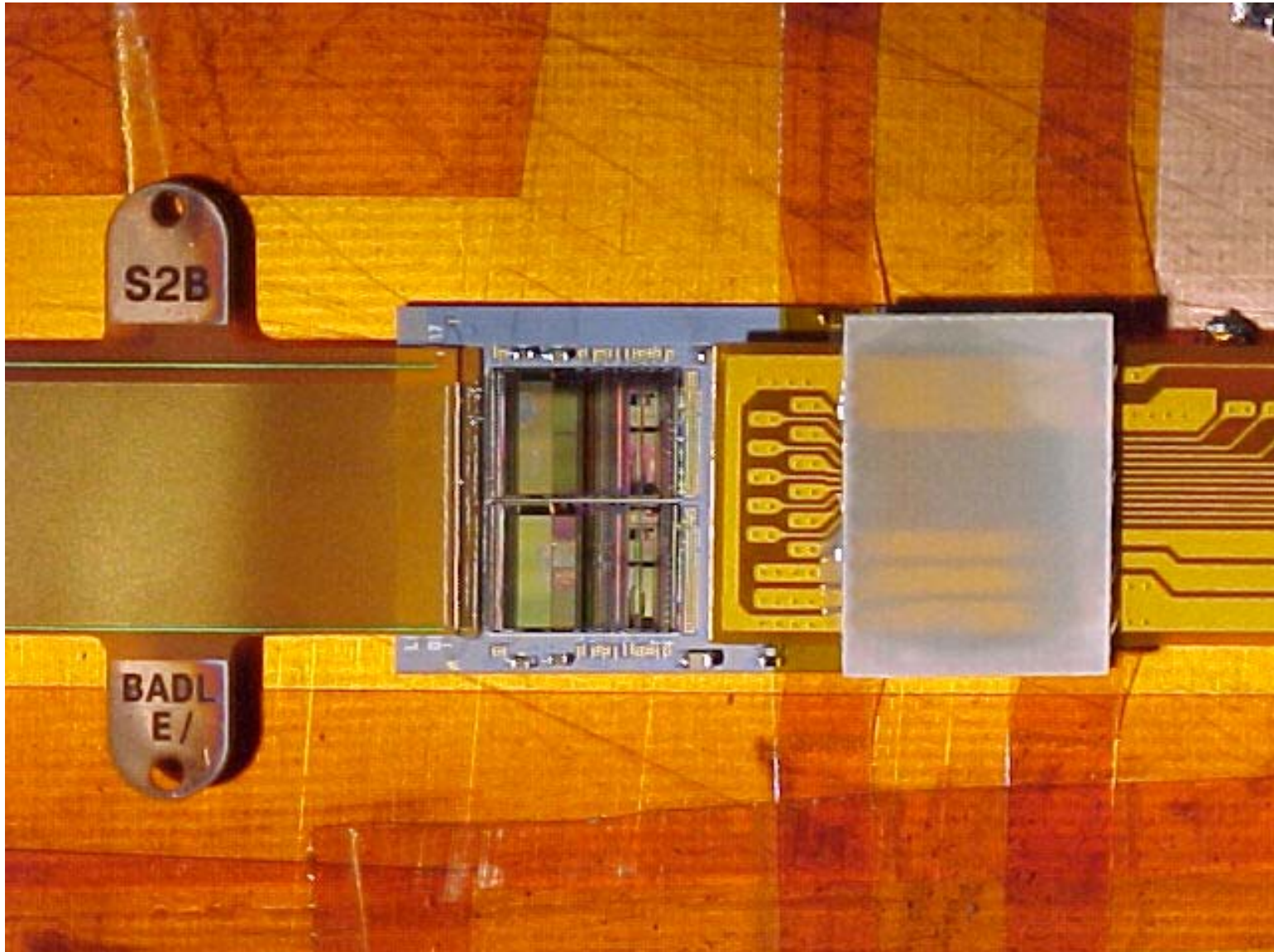
- No.3 First prototype with SVX4 (L1 hybrid)
 - No.4 with irradiated sensor
 - No.5 Installed on the support structure
 - No.6 has 10 chip hybrid with two sensor – very good for systematic comparison in the cable and spacer studies.
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- No.7 First prototype with L0 hybrid (with cut sensor)
 - No.8 in progress (L0 hybrid with new chip and un-cut sensor)
 - No.9 in progress (ditto)

4 or 10
chip hybrid

L0 hybrid

- *Characterization of single module is in good shape.*

No.7 module with L0 hybrid



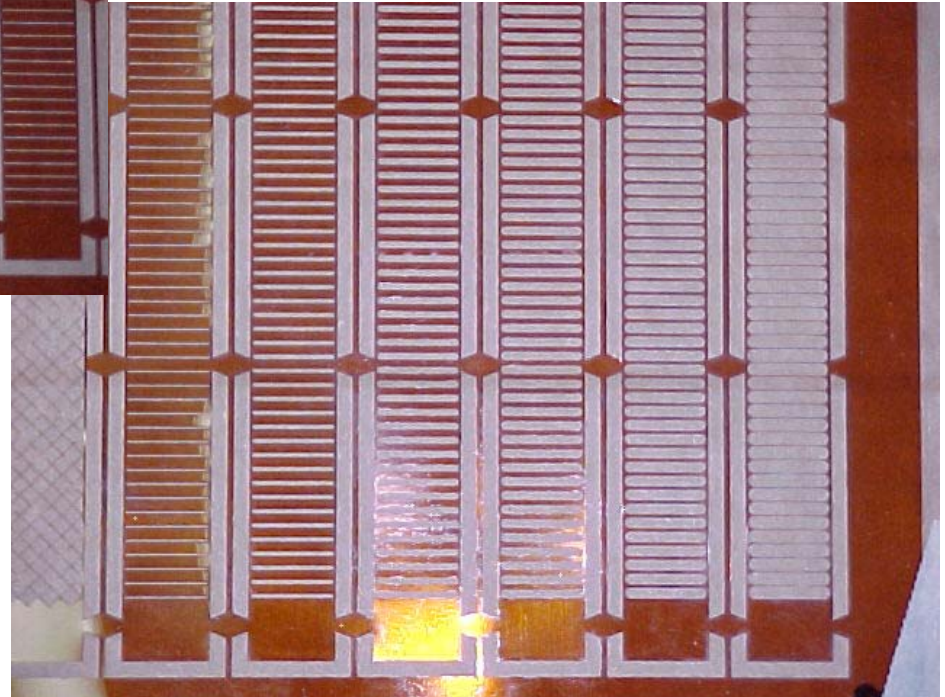
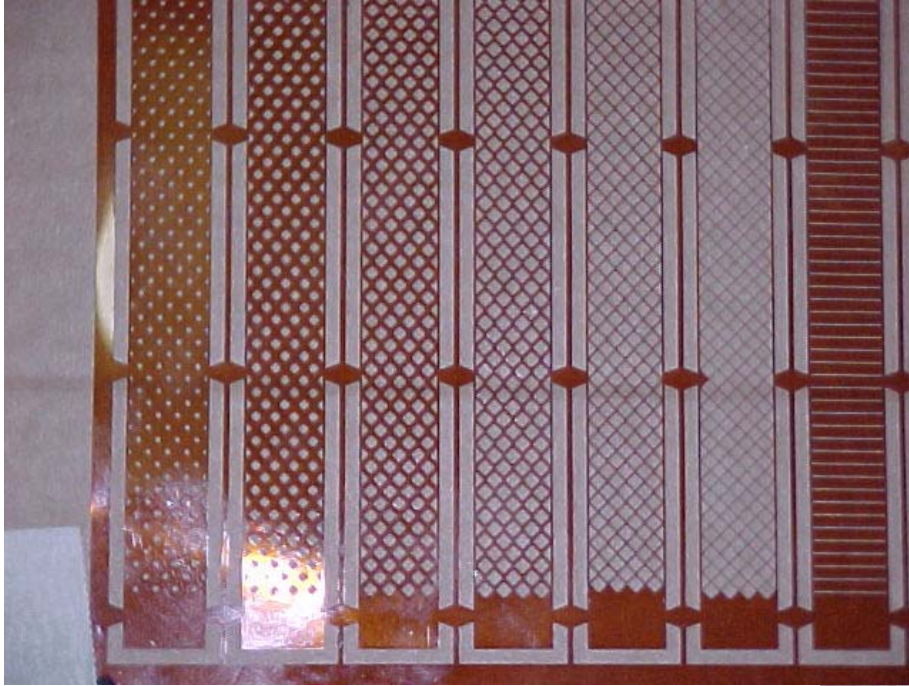
Goal – L0 module

- Simultaneous read out of multiple modules on the support structure.
 - No. 8 and 9 will go to the structure → B-sector because of the wider sensor.
 - Two for A-sector, two for B-sector would be the ideal
← should we build two more for A-sector? But the cut sensor is not happy so far.
 - Is it impossible to use the un-cut sensor for A-sector???
 - Question: can we use the prototype hybrid support by UW???

Goal – Analog Cable

- Finalizing the analog cable design.
 - $>500\text{ }\mu\text{m}$ space under the bottom cable.
 - ◀ Is there such thick Kapton? ◀ foam material suggested by Jim.
 - We still don't understand the reason why we don't see the non dependence of noise on the spacer
 - ➔ I propose to have $\sim 140\text{ }\mu\text{m}$ thick spacer between each cable.
(The original plan was $200\text{ }\mu\text{m}$ thickness, but the effective dielectric constant can be lowered.)
 - Electrically pre-laminated cable seems to be OK.
 - ➔ we need to choose the solution.

Spacer prototype



Pre-laminated or not – Analog Cable

Quoted from Frank's slide

- Dyconex wants to (probably) use a 3M adhesive film (APAS 1592 ?) specially designed for adhering stiffener to flex circuits
 - Liner: polyester, adhesive film contains polyolefin
 - Radiation hardness is very questionable
 - epoxy based adhesive would be much better in that respect
- company is not very keen to do this lamination job and a technical support/help from us (U Zurich) would probably become necessary
- prototype work on cable assembly at Sidet has made very good progress and there is no reason not to believe that it can be done very well at Sidet

Pre-laminated or not – Analog Cable

- assembly at Dyconex would probably make only sense if they also produce the spacer (Kapton meshes)
- we know that **Compunetics is able to do nice kapton meshes with minimal material at very low cost**
- having in mind the costs for the few Dyconex Kapton meshes (the ones with the holes) we ordered, it seems unlikely that they will even come close to Compunetics' price



- **Consequence: Spacer from Compunetics. Dyconex for only single cables (no lamination).**
- **We are very close to finalize the analog cable design.**

Issues on Spacer

- The shape follows the analog cable. Only the difference is the length.
- The location, or how it should be glued on the cables.

